

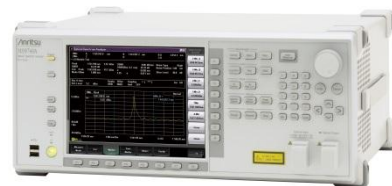
MS9740A

Optical Spectrum Analyzer

Automatic Control of MS9740A Measurement System

Outline

These reference materials explain the equipment connections and setup examples when using Visual Basic and NI-VISA to perform automatic control of the MS9740A Measurement System.



Equipment Setup

The MS9740A Optical Spectrum Analyzer is controlled over either Ethernet or GPIB using VISA installed in a controller PC. Consequently, VISA must be used when performing automatic control. An Ethernet or GPIB card installed in the control PC functions as the control interface supporting automatic control of the MS9740A from the external control PC. The basic equipment connections are shown in the following figures.

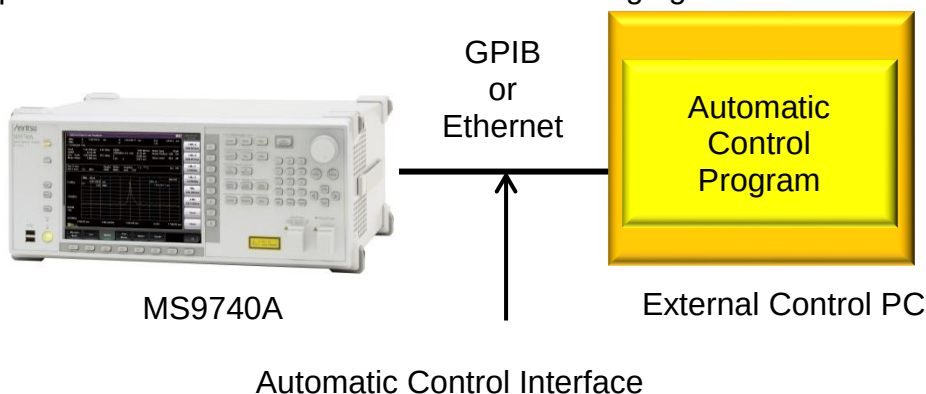


Fig. 1. Basic Equipment Connections

Setup Example

An example of the MS9740A setup is shown below. The automatic control interface uses a GPIB connection.

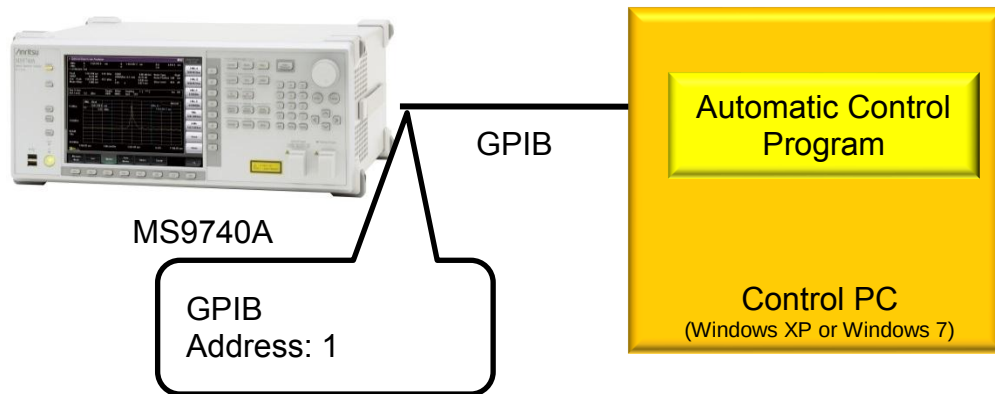


Fig. 2. MS9740A Measurement System

- (1) Connect the MS9740A GPIB connector and the GPIB connector of the control PC. Since the address of the control PC is allocated by the Visual Basic sample software, no further setting is required here.
- (2) Set the GPIB address at the MS9740A Configuration screen.

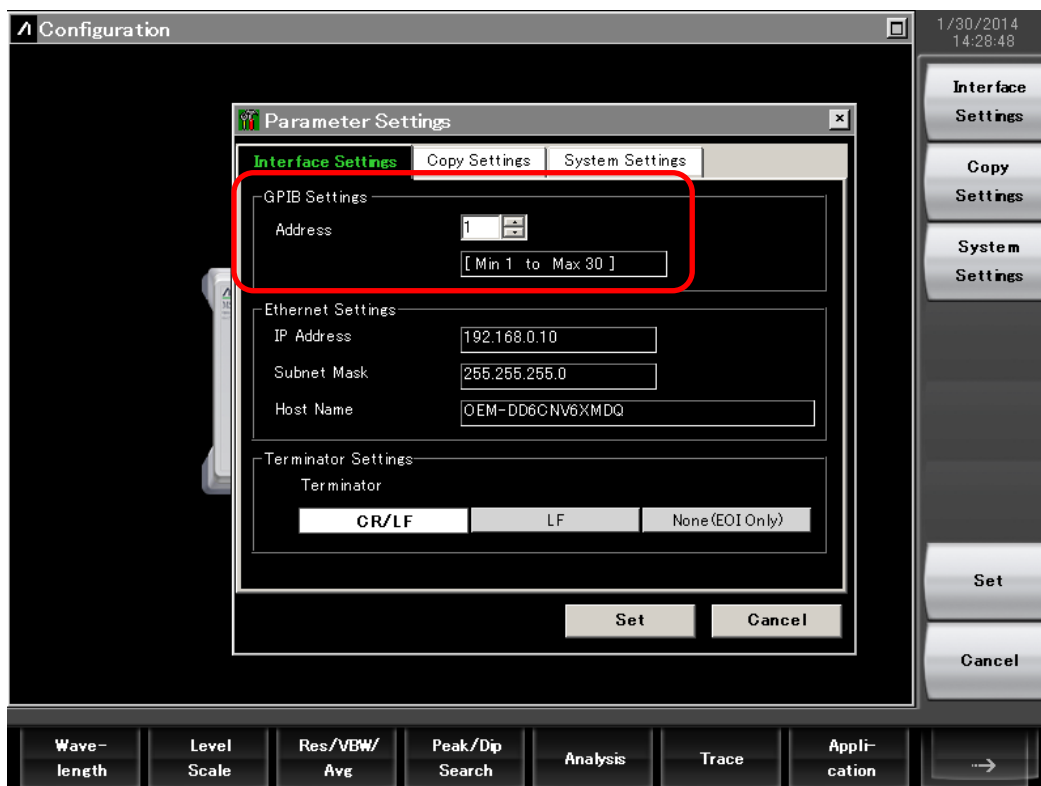


Fig. 3. Configuration Screen

(3) The above completes the settings. In the next step, the bundled Visual Basic sample software is used to perform remote control from the control PC. The sample software is assumed to be replaced by the customer's own automation control program.

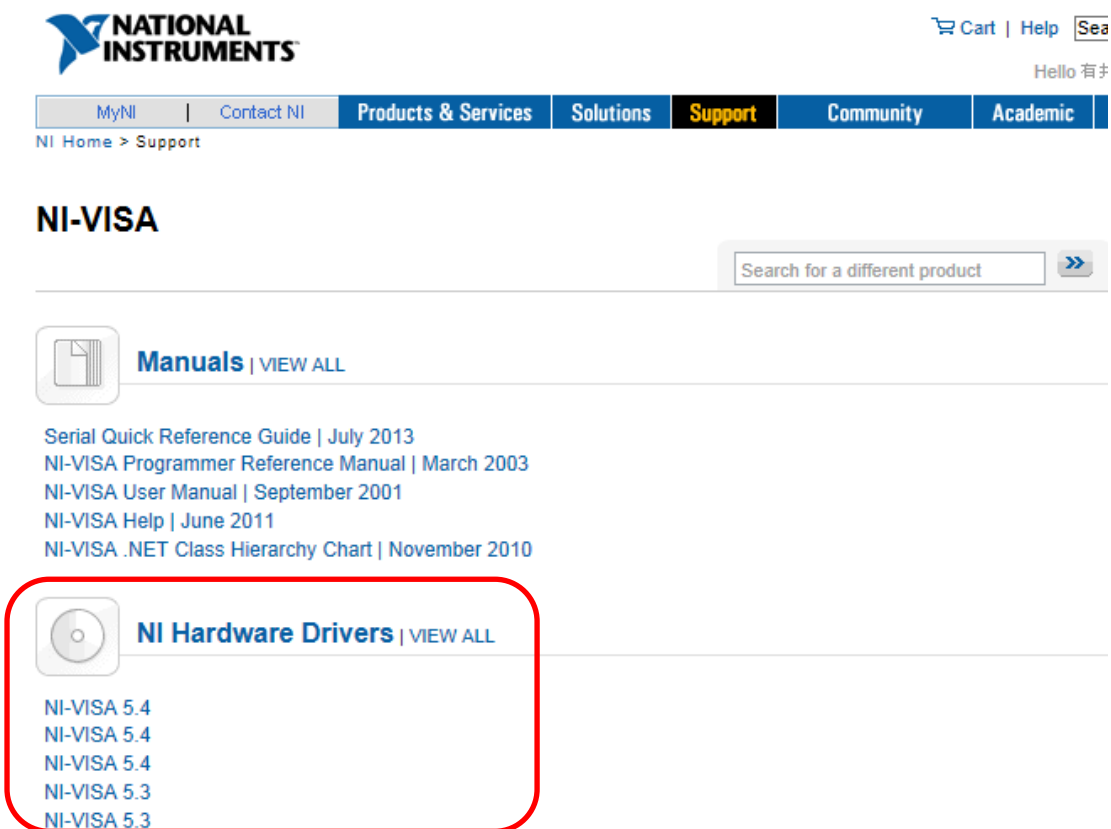
- a. The remote check tool runs on Visual Basic. First, download Visual Basic 2010 Express from the Visual Studio homepage and install it in the control PC. Visual Basic 2010 Express is a free download but registration is required.
<http://www.visualstudio.com/downloads/download-visual-studio-vs>

Visual Studio 2010 Express

Visual C++ 2010 Express
Visual C# 2010 Express
Visual Basic 2010 Express
Visual Web Developer 2010 Express
Visual Studio 2010 Express for Windows Phone
Visual Studio 2010 Express All-in-One ISO
Visual Studio 2010 Express for Windows Phone ISO

Fig. 4. Visual Basic Download

- b. NI-VISA is required when controlling the MS9740A using Visual Basic. First, download NI-VISA from the following URL and install it in the control PC. A license is required to use NI-VISA but it can be used free-of-charge depending on the National Instruments regulations. Check the MS9740A catalog for more details.
<http://sine.ni.com/psp/app/doc/p/id/psp-411>



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NI-VISA

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Fig. 5. Python Visa Download

- c. To operate the MS9740A using Visual Basic via NI-VISA, add the following items when installing NI-VISA.
 1. Development Support —.NET Framework 2.0 Language Support
 2. NI Measurement & Automation Explorer —.NET Framework 2.0 Language Support

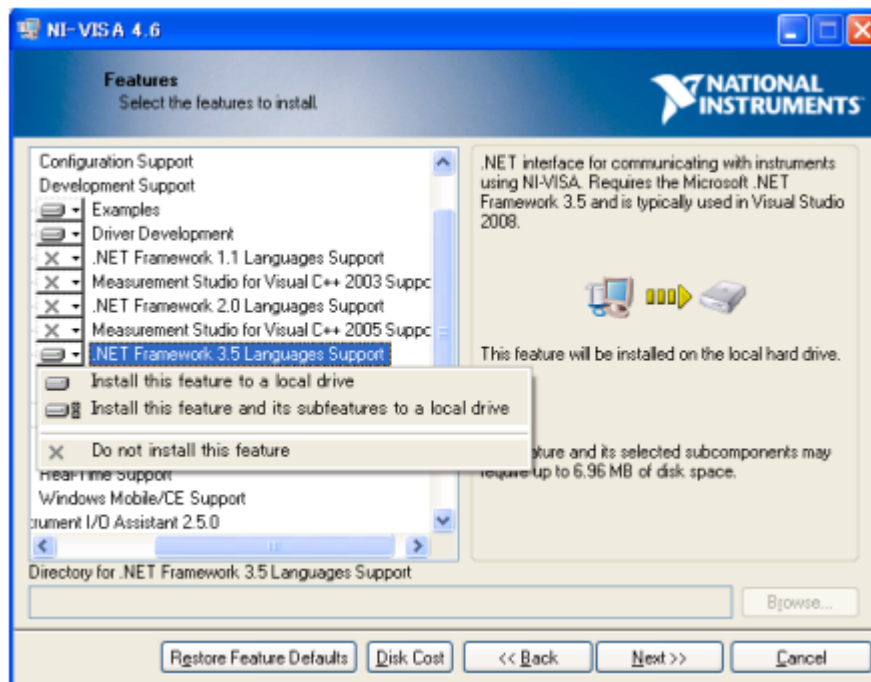


Fig. 6. VISA Install Function Selection Screen

- d. After installing NI-VISA, execute OSA_SCPI_Sample.sln in the provided OSA_SCPI_Sample folder. After executing OSA_SCPI_Sample.sln, proceed as follows at the Visual Basic screen.
 1. Click [Add Reference] at the Project menu
 2. Click the .NET tab in the Add Reference dialog box.
 3. Select National Instruments Common and National Instruments VisaNS, and click OK.
 4. Click Solution Explore from the menu list.
 5. Double-click My Project of Solution Explore.
 6. Put checkmarks in the list of imported name spaces for National Instruments Common and National Instruments VisaNS
 7. Click Add button.

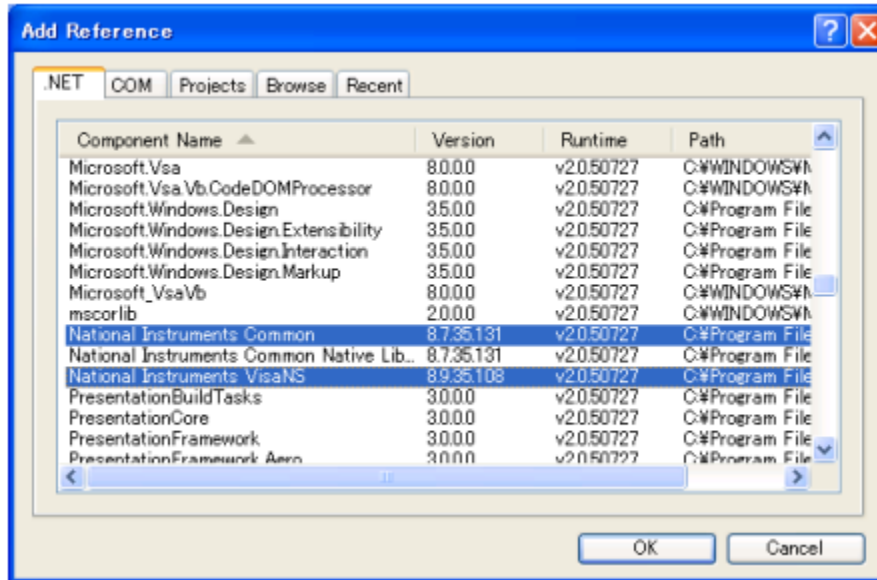


Fig. 7. Add Reference Dialog Box

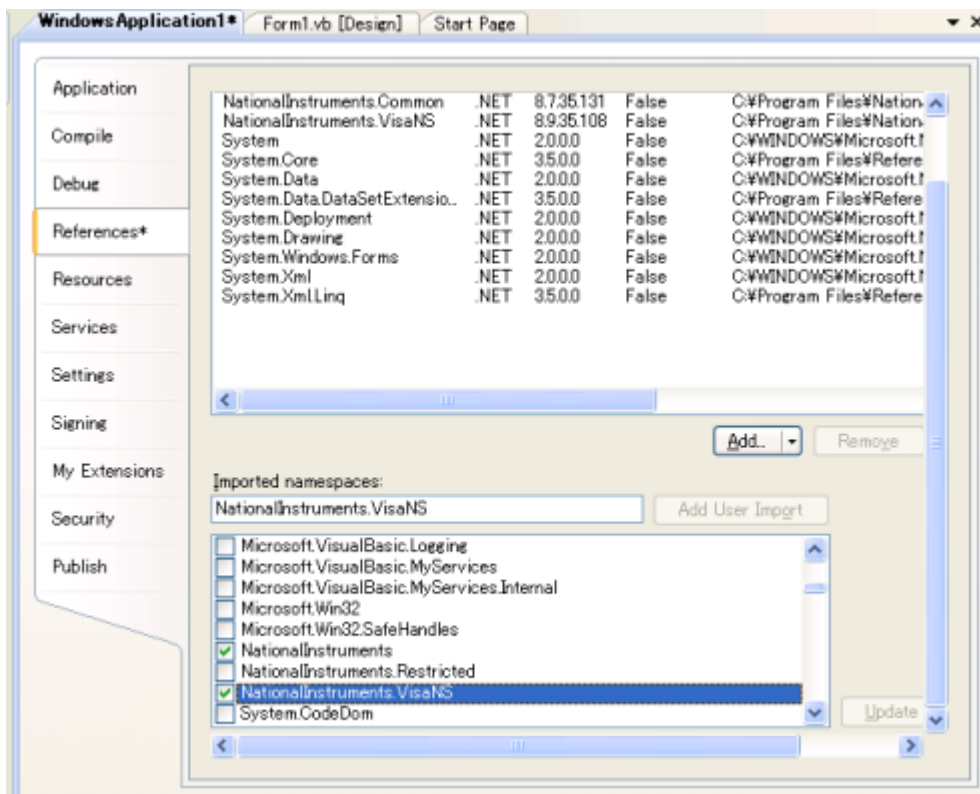


Fig. 8. Project Reference Setting

- e. After the references have been added normally, either start debugging from Visual Basic debug or click the debug start button on the screen.

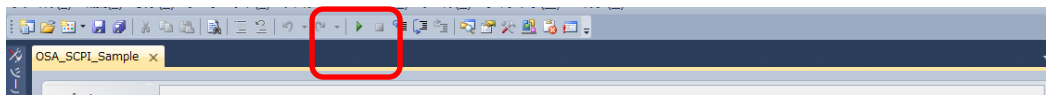


Fig. 9. Debug Start Button

- f. When debugging starts, a screen like that shown in Fig. 10 is displayed. Confirm each setting and the obtained results.

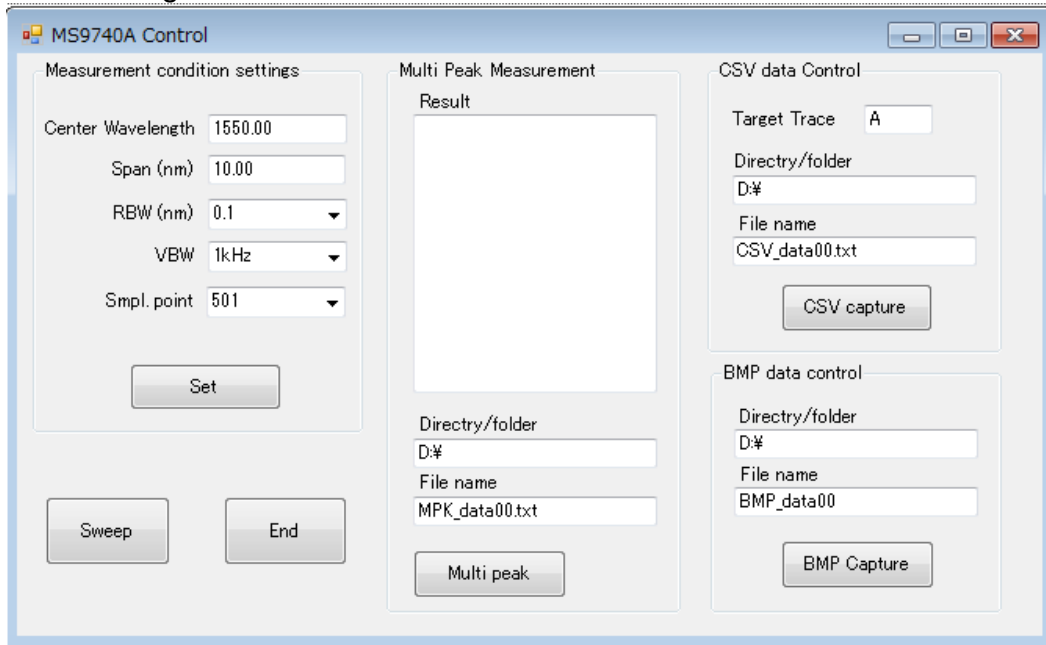


Fig. 10. Visual Basic GUI

If an error is displayed during debugging, there is a connection error. Reconfirm the connections.

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